

LL	AAAAAA	LL	000000	AAAAAA	DDDDDDDD	EEEEEEEEE	RRRRRRRR
LL	AAAAAA	AA	000000	AA	DD	EE	RRRRRRRR
LL	AA	AA	00	AA	DD	DD	RR
LL	AA	AA	00	AA	DD	EE	RR
LL	AA	AA	00	AA	DD	EE	RR
LL	AA	AA	00	AA	DD	EE	RR
LL	AA	AA	00	AA	DD	EE	RR
LL	AA	AA	00	AA	DD	EE	RR
LL	AA	AA	00	AA	DD	EE	RR
LL	AA	AA	00	AA	DD	EE	RR
LL	AA	AA	00	AA	DD	EE	RR
LL	AA	AA	00	AA	DD	EE	RR
LL	AA	AA	00	AA	DD	EE	RR
LL	AA	AA	00	AA	DD	EE	RR
LL	AA	AA	000000	AA	DDDDDDDD	EEEEEEEEE	RR
LL	AA	AA	000000	AA	DDDDDDDD	EEEEEEEEE	RR
LLLLLLLL	AA	AA	LLLLLLLL	AA	AA	RR	RR
LLLLLLLL	AA	AA	LLLLLLLL	AA	AA	RR	RR

LL	IIIIII	SSSSSSSS
LL	IIIIII	SSSSSSSS
LL	IIIIII	SSSSSSSS
LL	IIIIII	SSSSSS
LL	IIIIII	SSSSSS
LL	IIIIII	SSSS
LL	IIIIII	SS
LL	IIIIII	SSSSSSSS
LL	IIIIII	SSSSSSSS
LLLLLLLL	IIIIII	SSSSSSSS
LLLLLLLL	IIIIII	SSSSSSSS

(2)	49	DECLARATIONS
(3)	151	MAIN PROGRAM
(4)	203	PMBAST - MAILBOX AST ROUTINE
(5)	302	PWRRECAST - POWER RECOVERY AST ROUTINE
(6)	375	LOADMC - ROUTINE TO LOAD MICROCODE
(7)	480	SETCLOCK - ROUTINE TO SET LPA-11 CLOCK
(8)	527	ASSIGNRMB - ASSIGN A CHANNEL TO RETURN MAILBOX

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0000 2 .IDENT 'V04-000'
0000 3 .
0000 4 .
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0000 24 .*:
0000 25 .*:
0000 26 .*****
0000 27 .
0000 28 .
0000 29 .++
0000 30 .: FACILITY: LPA-11 UTILITY PROGRAMS
0000 31 .:
0000 32 .: ABSTRACT:
0000 33 .: THIS PROGRAM IS THE LPA-11 MICROCODE LOADER. IT LOADS MICROCODE
0000 34 .: WHEN REQUESTED BY A MAILBOX REQUEST AND RELOADS MICROCODE AFTER
0000 35 .: A POWER RECOVERY.
0000 36 .:
0000 37 .: ENVIRONMENT: USER MODE
0000 38 .:
0000 39 .: AUTHOR: STEVE BECKHARDT, CREATION DATE: 4-OCT-78
0000 40 .:
0000 41 .: MODIFIED BY:
0000 42 .:
0000 43 .: V02-003 SRB0003 Steve Beckhardt 3-Sep-1980
0000 44 .: Changed microcode version number in mode word of initialize
0000 45 .: command from 4 to 5.
0000 46 .:
0000 47 .:--

DECLARATIONS

```

0000 49 .SBTTL DECLARATIONS
0000 50 : INCLUDE FILES:
0000 51 : $DIBDEF
0000 52 : $LADEF
0000 53 : $DIBDEF : DIB OFFSETS
0000 54 : $LADEF : LPA-11 DEFINITIONS
0000 55
0000 56 :
0000 57 : MACROS:
0000 58 :
0000 59
0000 60 :
0000 61 : EQUATED SYMBOLS:
0000 62 :
0000 63
00000001 64 CLKMODE = 1 : SET CLOCK MODE WORD
00000141 65 CLKSTATUS = ^X141 : SET CLOCK STATUS WORD
00000001 66 DEFCLKRATE = 1 : DEFAULT CLOCK RATE (1 MHZ)
FFFFFFFFFF9C 67 DEFPRESET = -100 : DEFAULT CLOCK PRESET
0000 68
00000006 69 DEVNFND = ^0326 : DEVICE NOT FOUND ERROR (INITIALIZE QIO)
0000 70
00001100 71 PROTMASK = ^X1100 : MAILBOX PROTECTION MASK
00000008 72
00000008 73 MINMSGSZ = 8 : MINIMUM MESSAGE SIZE
0000 74
0000 75 : OFFSETS INTO MAILBOX
0000 76
00000000 77 MBX$L_TYPE = 0 : MESSAGE TYPE
00000004 78 MBX$B_CTRLR = 4 : CONTROLLER LETTER
00000005 79 MBX$B_MCTYPE = 5 : MICROCODE TYPE
00000006 80 MBX$W_RMBUNIT = 6 : RETURN MAILBOX UNIT NUMBER
0000 81
0000 82 :
0000 83 : OWN STORAGE:
0000 84 :
0000 85
00000000 86 .PSECT _LPASDATA, LONG
0000 87
00000000 88 CNTRLR_TBL: : CONTROLLER TABLE
00000000 89 .LONG 0
00000000 90
0000000C 91 LAIOSB: .BLKQ 1 : LPA-11 I/O STATUS BLOCK
0000000C 92
00000014 93 PMBBIOSB: : PERM. MAILBOX I/O STATUS BLOCK
00000014 94 .BLKQ 1
00000014 95
00000014 96 PMBCHAN: : PERMANENT MAILBOX CHANNEL
00000014 97 .WORD 0
00000016 98 RMBCHAN: : REPLY MAILBOX CHANNEL
00000016 99 .WORD 0
00000018 100 LACHAN: : LPA-11 CHANNEL
00000018 101 .WORD 0
0000001A 102
0000001A 103 INITTBL: : TABLE FOR INITIALIZE QIO
0500000030 104 .WORD ^X0500 : MODE WORD (INCLUDES UCODE VERSION NUMBER)
0000000030 105 .BLKW 10 : SPACE FOR TEN DEVICE ADDRESSES

```

DECLARATIONS

```

00000130 0030 106 DMDT: .BLKB 256 ; DEDICATED MODE DISPATCH TABLE
0130 107
0130 108 CHANBFR: .BLKB DIBSL DEVDEPEND+4 ; BUFFER FOR CHANNEL CHARACTERISTICS
0000013C 0130 109
0000000C 013C 110 CHANBFRSIZ = .-CHANBFR
013C 111
0000015C 013C 112 MBXBFR: .BLKB 32 ; MAILBOX BUFFER
015C 113
41 4C 015C 114 LANAME: .ASCII 'LA' ; LPA-11 DEVICE NAME
015E 115 LACTRLR: .ASCII ' '
20 015E 116 .ASCII ' '
30 015F 117 .ASCII '0' ; SPACE FOR CONTROLLER LETTER
30 015F 118 LANAMESIZ = .-LANAME ; UNIT ZERO
00000004 0160 119
0160

```

Pha

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589
22

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-\$2
235
The
MAC

DECLARATIONS

00000000	121	.PSECT	_LPASCODE	,NOWRT, LONG
0000	122			
0000000A'	0000	123	PMBNAMDESC:	
0000002C'	0004	124	.LONG	PMBNAMSIZ
	0008	125	.LONG	PMBNAM
00000004	0008	126		
0000015C'	000C	127	LANAMEDSC:	
	0010	128	.LONG	LANAMESIZ
0000000C	0010	129	.LONG	LANAME
00000130'	0014	130		
	0018	131	CHANBFRDSC:	
	0018	132	.LONG	CHANBFRSIZ
	0018	133	.LONG	CHANBFR
	0018	134		
	0018	135		
	0018	136	DEVTBL:	
F104	0018	137	.WORD	^0170404
F11A	001A	138	.WORD	^0170432
F100	001C	139	.WORD	^0170400
F120	001E	140	.WORD	^0170440
F110	0020	141	.WORD	^0170420
EFF8	0022	142	.WORD	^0167770
EFF0	0024	143	.WORD	^0167760
EFE8	0026	144	.WORD	^0167750
EFE0	0028	145	.WORD	^0167740
EFDB	002A	146	.WORD	^0167730
	002C	147		
52 45 44 41 4F 4C 24 41 50 4C	002C	148	PMBNAM:	ASCII 'LPASLOADER'
0000000A	0036	149	PMBNAMSIZ =	.-PMBNAM

MAIN PROGRAM

```

0036 151      .SBTTL MAIN PROGRAM
0036 152      :+++
0036 153      : FUNCTIONAL DESCRIPTION:
0036 154      :
0036 155      : THIS IS THE MAIN PROGRAM FOR THE LPA-11 MICROCODE LOADER.
0036 156      : IT PERFORMS SOME INITIALIZATION, SPECIFIES A POWER RECOVERY AST.
0036 157      : CREATES A MAILBOX, SPECIFIES A MAILBOX AST, AND THEN HIBERNATES.
0036 158      : ALL SUBSEQUENT PROCESSING IS PERFORMED IN ONE OF THE TWO AST ROUTINES.
0036 159      :
0036 160      : CALLING SEQUENCE:
0036 161      :
0036 162      : ENTERED WHEN PROGRAM IS STARTED
0036 163      :
0036 164      : INPUT PARAMETERS:
0036 165      :
0036 166      : NONE
0036 167      :
0036 168      : OUTPUT PARAMETERS:
0036 169      :
0036 170      : NONE
0036 171      :
0036 172      :--+
0036 173      :
003C 0036 174      .ENTRY START,^M<R2,R3,R4,R5>
0038 0038 175      :
0038 0038 176      : PERFORM INITIALIZATION
0038 0038 177      CLR1 CNTRLR_TBL      : CLEAR CONTROLLER TABLE
0038 0038 178      MOVC3 #256,LPASS$DMDT,DMDT : COPY DED. MODE DISPATCH TABLE
0047 0047 179      :
004C 004C 180      $SETSFM_S      #1      : SET SYS. SERVICE FAILURE FXCP.
0055 0055 181      :
0055 0055 182      $SETPRA_S      PWRRECAST : SET POWER RECOVERY AST
0064 0064 183      :
0064 0064 184      : CREATE A PERMANENT MAILBOX AND MARK IT FOR DELETION TO CLEANUP
0064 0064 185      : IF THIS PROCESS EXITS
0064 0064 186      $CREMBX_S      PRMFLG = #1,-      : PERMANENT
0064 0064 187      : CHAN = PMBCHAN,-      : CHANNEL
0064 0064 188      : MAXMSG = #32,-      : MAXIMUM MESSAGE SIZE
0064 0064 189      : BUFQUO = #64,-      : BUFFER QUOTA
0064 0064 190      : PROMSK = #PROTMASK,- : PROTECTION MASK
0064 0064 191      : LOGNAM = PMBNAMDSC : LOGICAL NAME
0086 0086 192      :
0086 0086 193      $DELMBX_S      PMBCHAN
0094 0094 194      :
0094 0094 195      : SET UP MAILBOX AST
0094 0094 196      $QIOW_S      FUNC = #IOS_SETMODE!IOSM_WRTATTN,- : FUNCTION
0094 0094 197      : CHAN = PMBCHAN,-      : CHANNEL
0094 0094 198      : P1 = PMBAST      : MAILBOX AST ADDRESS
0089 0089 199      :
0089 0089 200      : NOW HIBERNATE
0089 0089 201      $HIBER_S

```


PMBAST - MAILBOX AST ROUTINE

			0146	260				
			0146	261				
			0146	262				
			0146	263				
			0146	264				
			0159	265				
			015C	266				
			015C	267				
			0163	268				
			0166	269				
			0169	270				
			0169	271				
			0169	272				
			0171	273				
			0171	274	30\$:			
			0171	275				
			0174	276				
			0179	277				
			017C	278				
			017C	279	40\$:			
			017C	280				
			017F	281				
			0180	282				
			0190	283				
			0190	284	50\$:			
			0190	285				
			0197	286				
			0199	287				
			01A0	288				
			01A0	289				
			01A0	290				
			01A3	291				
			01A6	292				
			01A6	293				
			01A6	294				
			01A6	295				
			01A6	296				
			01A6	297				
			01CB	298				
			01CB	299				
			01D9	300	60\$:			
			01D9	301				
			01D9	302				
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			01CB	398				
			01CB	399				
			01D9	400	60\$:			
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			01D9	497				
			01CB	498				
			01CB	499				
			01D9	500	60\$:			
			01D9	501				
			01D9	502				
			01D9	503				
			01D9	504				
			01D9	505				

01DC 302 .SBTTL PWRRECAST - POWER RECOVERY AST ROUTINE
 01DC 303 :++
 01DC 304 : FUNCTIONAL DESCRIPTION:
 01DC 305 :
 01DC 306 : THIS ROUTINE IS THE POWER RECOVERY AST ROUTINE. FOR EACH LPA-11
 01DC 307 : CONTROLLER THAT HAS BEEN LOADED BY THIS LOADER (SAVED IN CNTRLR_TBL),
 01DC 308 : THIS ROUTINE GETS THE DEVICE CHARACTERISTICS, LOADS THE SAME MICROCODE
 01DC 309 : AS WAS LAST LOADED, AND SETS THE CLOCK TO THE LAST CLOCK RATE SET.
 01DC 310 :
 01DC 311 : CALLING SEQUENCE:
 01DC 312 :
 01DC 313 : CALLS/G FROM AST DISPATCHER WHEN POWER RECOVERY OCCURS
 01DC 314 :
 01DC 315 : INPUT PARAMETERS:
 01DC 316 :
 01DC 317 : NONE
 01DC 318 :
 01DC 319 : OUTPUT PARAMETERS:
 01DC 320 :
 01DC 321 : NONE
 01DC 322 :--
 003C 323 .ENTRY PWRRECAST, ^M<R2,R3,R4,R5>
 01DC 324 :
 01DE 325 : REENABLE POWER RECOVERY ASTS
 01DE 326 : \$SETPRA_S PWRRECAST
 01EA 327 :
 01EA 328 :
 01EA 329 : DISABLE SYSTEM SERVICE FAILURE EXCEPTIONS
 01EA 330 : \$SETSFM_S
 01F3 331 :
 52 D4 01F3 332 CLRL R2 : LOOP COUNTER
 01F5 333 :
 6F 00000000'EF 52 E1 01F5 334 10\$: WAS NEXT CONTROLLER LOADED?
 01FD 335 BBC R2,CNTRLR_TBL,80\$: BR. IF NO
 01FD 336 :
 53 52 40 8F 89 01FD 337 : YES, CONVERT NUMBER TO CONTROLLER LETTER
 53 D6 0202 338 BISB3 #^X40,R2,R3 : OR IN ^X40
 0204 339 INCL R3 : ADD 1
 0000015E'EF 53 90 0204 340 MOVB R3,LACTRLR : MOVE CONTROLLER LETTER INTO LANAME
 0208 341 :
 0208 342 :
 0208 343 : ASSIGN A CHANNEL TO LPA-11
 0208 344 : \$ASSIGN_S DEVNAM = LANAMEDSC,- : DEVICE NAME
 0208 345 : CHAN = LACHAN : CHANNEL
 48 50 E9 021E 346 BLBC R0,80\$: UNABLE TO ASSIGN A CHANNEL
 0221 347 :
 0221 348 : GET CHANNEL INFO.
 0221 349 : \$GETCHN_S PRIBUF = CHANBFRDSC,- : BUFFER
 0221 350 : CHAN = LACHAN : CHANNEL
 22 50 E9 0239 351 BLBC R0,70\$: ERROR
 023C 352 :
 53 00000138'EF D0 023C 353 MOVL CHANBFR+DIB\$L_DEVDEPEND,R3 : GET DEV. DEP. CHARACTERISTICS
 0243 354 :
 54 53 02 01 EF 0243 355 : LOAD MICROCODE
 002F 30 0248 356 EXTZV #LASV_MCTYPE,#LASS_MCTYPE,R3,R4 : GET MICROCODE TYPE IN R4
 10 50 E9 0248 357 BSBW LOADMC
 358 BLBC R0,70\$: ERROR

54	53	03	00	024E	359		
55	53	10	10	024E	360		
		0121		024F	361	: SET CLOCK RATE	21
		00 50		0253	362	EXTZV #LASV RATE #LASS RATE R3 R4	44
				0258	363	EXTV #LASV PRESÉT, #LASS_PRÉSET, R3, R5	
				025B	364	: GET CLOCK RATE	
				025E	365	BSBW SETCLOCK	
				025E	366	: SET CLOCK RATE	
				70C	70C	BLBC R0,70\$	
				026C	367	: ERROR	
85	52	20	F2	026C	368	\$DASSGN_S LACHAN	60
				0270	369	: DEASSIGN CHANNEL	
				0270	370	AOBLSS #32,R2,10\$	71
				0270	371	: REPEAT FOR 32 CONTROLLERS	
				0279	372	\$SETSFM_S #1	30
				04	0279	373	01
						RET	30
							01
							21
							10
							21
							94
							61
							61
							61
							01
							5E
							24
							94
							90
							61
							A1
							94
							61
							61
							70
							E4

027A 375 .SBTTL LOADMC - ROUTINE TO LOAD MICROCODE
 027A 376 :++
 027A 377 : FUNCTIONAL DESCRIPTION:
 027A 378 :
 027A 379 : THIS ROUTINE IS THE ACTUAL MICROCODE LOADER. IT DOES THE FOLLOWING:
 027A 380 : 1) LOADS THE SPECIFIED MICROCODE
 027A 381 : 2) STARTS THE MICROPROCESSOR
 027A 382 : 3) INITIALIZES THE LPA-11. THE INITIALIZE IS REPEATED
 027A 383 : UNTIL THE CORRECT DEVICE CONFIGURATION ON THE LPA'S
 027A 384 : BUS IS FOUND.
 027A 385 :
 027A 386 : CALLING SEQUENCE:
 027A 387 :
 027A 388 : BSBW/B
 027A 389 :
 027A 390 : INPUT PARAMETERS:
 027A 391 :
 027A 392 : R4 CONTAINS MICROCODE TYPE TO LOAD:
 027A 393 : 1 = MULTIREQUEST MODE
 027A 394 : 2 = DEDICATED A/D MODE
 027A 395 : 3 = DEDICATED D/A MODE
 027A 396 :
 027A 397 : IMPLICIT INPUTS:
 027A 398 :
 027A 399 : LACHAN CONTAINS CHANNEL NUMBER OF LPA-11
 027A 400 :
 027A 401 : OUTPUT PARAMETERS:
 027A 402 :
 027A 403 : R0 CONTAINS COMPLETION CODE
 027A 404 : R1 CONTAINS SECOND LONGWORD OF I/O STATUS BLOCK ON I/O ERRORS
 027A 405 :
 027A 406 : COMPLETION CODES:
 027A 407 :
 027A 408 : VARIOUS SYSTEM STATUS RETURNS
 027A 409 : SSS_BADPARAM IS RETURNED IF R4 DOES NOT CONTAIN A 1,2, OR 3
 027A 410 :--
 027A 411 :
 027A 412 : LOADMC:
 3C BB 027A 413 PUSHR #^M<R2,R3,R4,R5>
 027C 414 :
 027C 415 : SEE WHICH TYPE OF MICROCODE IS SPECIFIED IN R4
 50 00000000'EF 3E 027C 416 MOVAW LPASSMRMCODE, R0 : ASSUME MULTIREQUEST MODE
 01 54 D1 0283 417 CMPL R4, #1 : IS IT?
 1F 13 0286 418 BEQL 10\$: YES
 50 00000000'EF 3E 0288 419 :
 02 54 D1 028F 420 MOVAW LPASSADMCCODE, R0 : ASSUME DED. A/D MODE
 13 13 0292 421 CMPL R4, #2 : IS IT?
 50 00000000'EF 3E 0294 422 BEQL 10\$: YES
 03 54 D1 0298 424 MOVAW LPASSDAMCODE, R0 : ASSUME DED. D/A MODE
 07 13 029E 425 CMPL R4, #3 : IS IT?
 02A0 426 BEQL 10\$: YES
 50 0000'8F 3C 02A0 428 : ERROR - BAD VALUE
 58 11 02A5 429 MOVZWL #SSS_BADPARAM, R0 : RETURN STATUS
 02A7 430 :
 02A7 431 :

LOADMC - ROUTINE TO LOAD MICROCODE

16-SEP-1984 01:55:36 VAX/VMS Macro V04-00
5-SEP-1984 01:53:34 [MCLDR.SRC]LA LOADER.MAR;1Page 11
(6)

			02A7	432	10\$: ; RO POINTS TO MICROCODE IMAGE TO LOAD - DO IT!		LPA	
			02A7	433	\$QIOW_S FUNC = #IOS_LOADMCODE,- ; FUNCTION			
			02A7	434	CHAN = LACHAN,- ; CHANNEL			
			02A7	435	IOSB = LAIOSB,- ; I/O STATUS BLOCK			
			02A7	436	P1 = (R0) - ; ADDRESS OF MICROCODE			
			02A7	437	P2 = #2048,- ; SIZE OF MICROCODE IMAGE			
			02A7	438	P3 = #0 ; STARTING MICRO PC			
28	00000004'EF	2C 50	E9	02D0	439	BLBC R0,15\$		PSE
			E9	02D3	440	BLBC LAIOSB,17\$		---
				02DA	441			LF
				02DA	442	: NOW START MICROPROCE SOR		
				02DA	443	\$QIOW_S FUNC = #IOS_STARTMPROC,- ; FUNCTION		
				02DA	444	CHAN = LACHAN,- ; CHANNEL		
				02DA	445	IOSB = LAIOSB ; I/O STATUS BLOCK		
69	00000004'EF	77 50	E9	02FF	446	15\$: ; ERROR		Pha
			E9	0302	447	17\$: ; ERROR		---
				0309	448			Ini
0000001C'EF	FDOA CF	14	28	0309	449	: NOW INITIALIZE IT		Com
				0309	450	MOV3 #20,DEVTBL,INITTBL+? ; START WITH ALL 10 DEVICE ADDRESSES		Pas
				0313	451			Syn
				0313	452	\$QIOW_S FUNC = #IOS_INITIALIZE,- ; FUNCTION		Pas
				0313	453	CHAN = LACHAN,- ; CHANNEL		Syn
				0313	454	IOSB = LAIOSB,- ; I/O STATUS BLOCK		Pse
				0313	455	P1 = INITTBL,- ; ADDRESS OF INIT. TABLE		Crc
				0313	456	P2 = #278 ; SIZE OF TABLE		Ass
28	00000004'EF	36 50	E9	0340	457	BLBC R0,70\$		The
			E8	0343	458	BLBS LAIOSB,60\$		735
				034A	459			The
D6	00000009'EF	1E	91	034A	460	: INITIALIZE FAILED - IS IT BECAUSE OF A BAD DEVICE ADDRESS?		180
			12	034A	461	CMPB LAIOSB+5,#DEVNFND ; IS IT DEVICE NOT FOUND?		0 p
				0352	462	BNEQ 60\$; NO, ERROR		
				0354	463			
0000001C'EF42	0000000A'EF	52	D4	0354	464	: HAVE A DEVICE NOT FOUND ERROR - FIND CORRESPONDING ENTRY IN		
0000001C'EF42	0000000A'EF	0A	B1	0356	465	: DEVICE TABLE AND SET IT EQUAL TO -1		
		12	0362	466	CLRL R2 ; LOOP COUNTER			
				467	30\$: ; MATCH?			
				468	CMPW LAIOSB+6,INITTBL+2[R2] ; NO			
				469	BNEQ 40\$; YES - SET TO -1			
				470	MNEGW #1,INITTBL+2[R2] ; RETRY INITIALIZE			
				471	BRB 20\$; TRY NEXT ENTRY			
				472	AOBLSS #10,R2,30\$			
				473	474 60\$: ; PICK UP I/O STATUS BLOCK BEFORE RETURNING			
50	00000004'EF	52	F2	036E	475	MOVQ LAIOSB,RO		O G
				0372	476 70\$: ; HAVE STATUS IN R0 (AND MAYBE R1 TOO)			
				0379	POPR #^M<R2,R3,R4,R5>			
				05	RSB			

037C 480 .SBTTL SETCLOCK - ROUTINE TO SET LPA-11 CLOCK
 037C 481 :++
 037C 482 : FUNCTIONAL DESCRIPTION:
 037C 483 :
 037C 484 : THIS ROUTINE SETS THE LPA-11 CLOCK TO THE SPECIFIED RATE AND PRESET.
 037C 485 :
 037C 486 : CALLING SEQUENCE:
 037C 487 :
 037C 488 : BSBW/B
 037C 489 :
 037C 490 : INPUT PARAMETERS:
 037C 491 :
 037C 492 : R4 CONTAINS CLOCK RATE IN LOW 3 BITS
 037C 493 : R5 CONTAINS CLOCK PRESET
 037C 494 :
 037C 495 : IMPLICIT INPUTS:
 037C 496 :
 037C 497 : LACHAN CONTAINS CHANNEL NUMBER OF LPA-11
 037C 498 :
 037C 499 : OUTPUT PARAMETERS:
 037C 500 :
 037C 501 : R0 CONTAINS COMPLETION CODE
 037C 502 : R1 CONTAINS SECOND LONGWORD OF I/O STATUS BLOCK ON I/O ERRORS
 037C 503 :
 037C 504 : COMPLETION CODES:
 037C 505 :
 037C 506 : VARIOUS SYSTEM STATUS RETURNS
 037C 507 :
 037C 508 :--
 037C 509 :
 037C 510 : SETCLOCK:
 50 50 0141 8F 3C 037C 511 MOVZWL #CLKSTATUS,R0 : CLOCK STATUS
 50 03 01 54 F0 0381 512 INSV R4,#1,#3,R0 : INSERT CLOCK RATE
 0386 513 :
 0386 514 : DO IT!
 0386 515 \$QIOW_S FUNC = #IOS_SETCLOCK,- : FUNCTION
 0386 516 CHAN = LACHAN,- : CHANNEL
 0386 517 IOSB = LAIOSB,- : I/O STATUS BLOCK
 0386 518 P2 = #CLKMODE,- : MODE WORD
 0386 519 P3 = R0,- : CLOCK STATUS
 0386 520 P4 = R5 : CLOCK PRESET
 07 50 E9 03AD 521 BLBC R0,50\$: ERROR
 0380 522 :
 50 00000004'EF 7D 0380 523 MOVQ LAIOSB,R0 : PICK UP I/O STATUS BLOCK
 0387 524 :
 05 0387 525 50\$: RSB

ASSIGNRMB - ASSIGN A CHANNEL TO RETURN M

0388 527 .SBTTL ASSIGNRMB - ASSIGN A CHANNEL TO RETURN MAILBOX
 0388 528 ::+
 0388 529 : FUNCTIONAL DESCRIPTION:
 0388 530 :
 0388 531 : THIS ROUTINE ASSIGNS A CHANNEL TO THE RETURN MAILBOX.
 0388 532 : IT ASSIGNS A CHANNEL TO THE NAME MBn WHERE n IS AN INPUT ARGUMENT.
 0388 533 :
 0388 534 : CALLING SEQUENCE:
 0388 535 :
 0388 536 : BSBW/B
 0388 537 :
 0388 538 : INPUT PARAMETERS:
 0388 539 :
 0388 540 : R3 CONTAINS THE MAILBOX NUMBER TO ASSIGN A CHANNEL TO
 0388 541 :
 0388 542 : OUTPUT PARAMETERS:
 0388 543 :
 0388 544 : R0 CONTAINS A COMPLETION CODE
 0388 545 :
 0388 546 : IMPLICIT OUTPUTS:
 0388 547 :
 0388 548 : RMBCHAN RECEIVES THE CHANNEL NUMBER OF THE CHANNEL ASSIGNED
 0388 549 :
 0388 550 : COMPLETION CODES:
 0388 551 :
 0388 552 : THE SAME ONES THAT ARE SUPPLIED BY THE \$ASSIGN SYSTEM SERVICE
 0388 553 :
 0388 554 :--
 0388 555 :
 0388 556 ASSIGNRMB:
 3C 88 0388 557 PUSHR #^M<R2,R3,R4,R5> ; SAVE SOME REGISTERS
 55 5E 00 038A 558 MOVL SP,RS ; SAVE STACK POINTER
 54 53 54 0A 78 038D 559 : CONVERT NUMBER TO ASCII STRING ON STACK
 7E 54 30 89 03C4 560
 53 05 03C8 561 : CONVERT NEXT DIGIT
 F1 12 03CA 562 CLRL R4 ; HIGH BITS OF DIVIDEND
 03CC 563 10\$: EDIV #10,R3,R3,R4 ; QUO. -> R3 REM. -> R4
 03CC 564 BISB3 #^X30,R4,-(SP) ; CONVERT TO ASCII AND PUSH ON STACK
 03CC 565 TSTL R3 ; REPEAT?
 03CC 566 BNEQ 10\$; BR. IF YES
 7E 424D 8F 03CC 567 : NOW PUSH 'MB' ONTO STACK
 03CC 568 MOVW #^A'MB',-(SP)
 03D1 569 :
 53 55 5E C3 03D1 570 : NOW BUILD A STRING DESCRIPTOR ON STACK
 6E 9F 03D5 571 SUBL3 SP,RS,R3 ; OVERALL LENGTH OF STRING
 53 DD 03D7 572 PUSHAB (SP) ; PUSH ADDRESS OF STRING
 54 5E 00 03D9 573 PUSHL R3 ; PUSH LENGTH
 03DC 574 MOVL SP,R4 ; R4 POINTS TO STRING DESCRIPTOR
 03DC 575 :
 03DC 576 :
 03DC 577 :
 03DC 578 : NOW ASSIGN THE CHANNEL
 03DC 579 \$ASSIGN_S DEVNAM = (R4),- ; DEVICE NAME
 03DC 580 CHAN = RMBCHAN ; CHANNEL
 03ED 581
 03ED 582
 5E 55 00 03ED 583 MOVL RS,SP ; RESTORE STACK POINTER

3C BA 03F0 584 POPR #^M<R2,R3,R4,R5> ; RESTORE REGISTERS
05 03F2 585 RSB ; RETURN CODE IN R0 FROM SASSIGN
03F3 586
03F3 587
03F3 588
03F3 589 .END START

SST1	= 00000001		SS\$-BADPARAM	*****	X	03
ASSIGNRMB	000003B8	R	SS\$-NORMAL	*****	X	03
CHANBFR	00000130	R	START	00000036	RG	03
CHANFRDSC	00000010	R	SYSS\$ASSIGN	*****	GX	03
CHANFRSIZ	= 0000000C		SYSS\$CREMBX	*****	GX	03
CLKMODE	= 00000001		SYSS\$DASSGN	*****	GX	03
CLKSTATUS	= 00000141		SYSS\$DELMBX	*****	GX	03
CNTRLR_TBL	00000000	R	SYSS\$GETCHN	*****	GX	03
DEFCLKRATE	= 00000001		SYSS\$HIBER	*****	GX	03
DEFRESET	= FFFFFF9C		SYSS\$QIOW	*****	GX	03
DEVNFND	= 000000D6		SYSS\$SETPRA	*****	GX	03
DEVTBL	00000018	R	SYSS\$SETSFM	*****	GX	03
DIBSL_DEVDEPEND	= 00000008					
DMDT	00000030	R				
INITTBL	0000001A	R				
IOSM_NOW	*****	X				
IOSM_WRTATTN	*****	X				
IOS_INITIALIZE	*****	X				
IOS_LOADMCODE	*****	X				
IOS_READVBLK	*****	X				
IOS_SETCLOCK	*****	X				
IOS_SETMODE	*****	X				
IOS_STARTMPROC	*****	X				
IOS_WRITEVBLK	*****	X				
LASS_MCTYPE	= 00000002					
LASS_PRESET	= 00000010					
LASS_RATE	= 00000003					
LASV_MCTYPE	= 00000001					
LASV_PRESET	= 00000010					
LASV_RATE	= 0000000D					
LACHAN	00000018	R				
LACTRLR	0000015E	R				
LAIOSB	00000004	R				
LANAME	0000015C	R				
LANAMEDSC	00000098	R				
LANAMESIZ	= 00000004					
LOADMC	0000027A	R				
LPASSADMCODE	*****	X				
LPASSDAMCODE	*****	X				
LPASSDMDT	*****	X				
LPASSMRCODE	*****	X				
MBX\$B_CTRLR	= 00000004					
MBX\$B_MCTYPE	= 00000005					
MBX\$L_TYPE	= 00000000					
MBX\$U_RMBUNIT	= 00000006					
MBXBFR	0000013C	R				
MINMSGSIZ	= 00000008					
PMBAST	000000C0	RG				
PMBCHAN	00000014	R				
PMBIOSB	0000000C	R				
PMBNAM	0000002C	R				
PMBNAMDSC	00000000	R				
PMBNAMSIZ	= 0000000A					
PROTMASK	= 00001100					
PWRRECAST	000001DC	RG				
RMBCHAN	00000016	R				
SETCLOCK	0000037C	R				

+-----+
! Psect synopsis !
+-----+

PSECT name

	Allocation	PSECT No.	Attributes
ABS .	00000000 (0.)	00 (0.)	NOPIC USR CON ABS LCL NOSHR NOEXE NORD NOWRT NOVEC BYTE
\$ABSS	00000000 (0.)	01 (1.)	NOPIC USR CON ABS LCL NOSHR EXE RD WRT NOVEC BYTE
LPASDATA	00000160 (352.)	02 (2.)	NOPIC USR CON REL LCL NOSHR EXE RD WRT NOVEC LONG
LPASCODE	000003F3 (1011.)	03 (3.)	NOPIC USR CON REL LCL NOSHR EXE RD NOWRT NOVEC LONG

+-----+
! Performance indicators !
+-----+

Phase

	Page faults	CPU Time	Elapsed Time
Initialization	37	00:00:00.10	00:00:00.45
Command processing	123	00:00:00.44	00:00:01.30
Pass 1	170	00:00:03.78	00:00:10.09
Symbol table sort	0	00:00:00.13	00:00:00.32
Pass 2	109	00:00:01.41	00:00:02.61
Symbol table output	7	00:00:00.06	00:00:00.06
Psect synopsis output	1	00:00:00.03	00:00:00.03
Cross-reference output	0	00:00:00.00	00:00:00.00
Assembler run totals	449	00:00:05.95	00:00:14.87

The working set limit was 1200 pages.

20688 bytes (41 pages) of virtual memory were used to buffer the intermediate code.

There were 10 pages of symbol table space allocated to hold 121 non-local and 20 local symbols.

589 source lines were read in Pass 1, producing 26 object records in Pass 2.

22 pages of virtual memory were used to define 21 macros.

+-----+
! Macro library statistics !
+-----+

Macro library name

Macros defined

\$255\$DUA28:[SYSLIB]STARLET.MLB;2

18

235 GETS were required to define 18 macros.

There were no errors, warnings or information messages.

MACRO/LIS=LISS:LA LOADER/OBJ=OBJS:LA LOADER MSRC\$:LA LOADER/UPDATE=(ENH\$:LA LOADER)

0233 AH-BT13A-SE
VAX/VMS V4.0

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